FYI
DHEC's Office of Solid Waste Reduction and Recycling
For Your Information...

Landfill 101

You throw it away. Where is away? Away is usually a landfill.

But let's begin at the beginning. All of us make solid waste – commonly known as trash or garbage. The waste that we make is managed for us. How? We manage it by recycling, burning (sending it to an incinerator) and disposing (sending it to a landfill).

Most of the waste we generate goes to a landfill. In fiscal year (FY) 2002, South Carolinians generated more than 4.39 million tons of municipal solid waste (MSW) according to the S.C. Solid Waste Management Annual Report. What is MSW? It's the combined residential, commercial and institutional waste generated that includes but is not limited to paper, cans, food scraps, yard waste and packaging.

Of the 4.39 million tons of MSW generated in FY 2002, more than 1.26 million tons or 28.7 percent was recycled. Of the remaining amount, 208,626 tons or about 4.8 percent was sent to the state's only MSW incinerator while 2.92 million tons or 66.5 percent were disposed in the state's 18 MSW landfills.

Just what is a landfill? A landfill is a large, outdoor site designed for the disposal of waste. There are different kinds of landfills that accept different materials. There are, for example, construction and demolition debris (C&D) landfills that can accept only C&D debris. Other types of landfills include industrial, hazardous waste and land-clearing debris landfills. But, generally, the trash and garbage that we throw away every day is disposed of in a MSW landfill.

Landfills are a fact of life. Although waste reduction, reuse, recycling and composting divert large amounts of MSW from disposal, some waste still must be disposed of in landfills.

Landfills are not just holes in the ground.

In the past, there were little or no regulations regarding landfills. It showed. Many people remember smelly, unlined dumps that contaminated groundwater and caused other environmental problems. It's different today. Modern landfills are well-engineered facilities that must meet strict U.S. Environmental Protection Agency (U.S. EPA) regulations that were established to protect human health and the environment. When you think of it this way – and most of us don't - garbage disposal is no less an essential public service than police or fire protection.

MSW landfills, for example, must be built in suitable geological areas away from faults, wetlands, flood plains and other restricted areas. The design of landfills includes plastic liners and other materials like clay to prevent groundwater contamination. Monitoring is required to test groundwater quality and determine if there is any contamination present. Daily operation of landfills includes compacting (crushing) and covering waste frequently with several inches of soil to reduce odor and litter as well as control rodents and pests. Closed landfills must have a final cover that includes soil and a synthetic liner. Once the landfill is closed, the responsibility of the landfill operator still doesn't end. Landfill operators must provide financial assurance – funding – to provide environmental care and protection during and after the closing of a landfill.

In short, today's landfills are expensive to design, build and maintain. Beyond the expense, landfills also are difficult to build simply because the public frequently opposes new construction. People remember the past poor practices and are concerned about their health and environment as well as property values, noise, odors and traffic if a landfill is built near their community.

All of this – according to some experts – is somewhat ironic in that the modern landfill was designed to overcome the problems of the past, particularly the twin problems of open dumps and garbage incinerators that befouled the air.

A Brief History of Landfills

Who invented the modern landfill that led to the MSW landfills of today? No one knows. Some experts say the British did in the 1920s. Others say there were "sanitary" landfills (landfills where the new garbage is covered daily by some material) in the U.S. earlier than that, for example, in Champaign, Illinois in 1904.

This much is certain – wherever and whenever the first modern landfill was built and all those built afterwards, the drive to build it was public health. People caught on to the connection of sickness in the community and open dumps. “Sanitary” landfills gradually caught on in the 1930s but got their biggest boost from the U.S. Army Corps of Engineers who made sanitary landfills the disposal method of choice for military facilities during World War II. By 1945, about 100 American cities had “sanitary” landfills. Within 15 years, that number had increased to about 1,400.

And what’s going on today?

Nationwide, the number of active MSW landfills has shrunk from nearly 8,000 in 1988 to 1,967 in 2000 according to the U.S. EPA. (There are thousands of closed landfills nationwide.) But what landfills lack in numbers is made up in size. Landfills are much bigger today than yesterday. As such, today’s landfills have a much longer lifespan and frequently accept waste from a much larger geographical area.

The Myth of Biodegradation

Most of us assume that when we throw something away what we throw away eventually biodegrades – decomposes or breaks down – in the landfill. You know, a return to nature kind of thing. Well, not necessarily. It depends on what was thrown away – and a lot of other things.

One of the most recognized research efforts on landfills and landfills issues, including biodegradation, has been the work done by the Garbage Project at the University of Arizona. Researchers – archeologists – mined local landfills to learn about modern civilization. Among their findings – trash doesn’t break down.

The Garbage Project discovered that landfills are a much more static structure and that biodegradation takes a lot longer than previously thought. Air and water are necessary for biodegradation. Under normal landfill conditions – that is when the garbage is covered by dirt after being dumped and the landfill is relatively dry – the only types of garbage that truly decompose are certain types of food scraps and yard waste and even that takes a long time. Hot dogs and pastries, buried as long as 15 years, were still recognizable. Grass clippings were still green. Newspapers, long thought to be easily biodegradable, were found in landfills virtually intact after being buried for decades. The bottom line is this: throwing something away is a lifetime decision in more ways than one.

Think before you throw.

For now, like them or not, there is a need for MSW landfills. But each of us should do our part and reduce, reuse, recycle and compost whenever possible to save landfill space as well as natural resources and energy. For more information on landfills or to receive a landfill poster, visit DHEC’s Office of Solid Waste Reduction and Recycling Web site at **www.scdhec.gov/recycle** or call **1-800-768-7348.**

Glossary

Cell – an area in a landfill where waste is disposed each day.

Leachate – a liquid formed when water from rain or underground sources mixes with garbage. The leachate must be collected by the landfill operator so it doesn’t contaminate nearby groundwater.

Methane gas – a colorless, odorless, flammable and explosive gas produced by decomposing garbage. In some landfills, methane is collected and burned to create energy. In South Carolina, for example, this is being done at the Horry County Landfill in partnership with Santee Cooper.

Tipping fee – a fee individuals, communities or garbage haulers pay to dispose of their waste at the landfill. Garbage trucks dump or *tip* their loads at the landfills – hence its name.

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